CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC) - National Center for Environmental Health (NCEH)

Air Pollution and Respiratory Health

Introduction

The Air Pollution and Respiratory Health Branch of the National Center for Environmental Health directs the fight of the Centers for Disease Control (CDC) against respiratory illness associated with air pollution. We can help state and local health organizations in a number of ways.

- We consult with, and provide epidemiologic assistance to, state and local public health agencies and foreign ministries of health.
- We establish surveillance systems for respiratory illnesses.
- We assist in developing and implementing specialized epidemiologic studies.
- We develop training materials and make presentations to professional and community groups.
- In collaboration with other agencies, we promote the dissemination of information about air quality and the health effects of air pollution.
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THE PROBLEM

The public health importance of a clean and safe environment is enormous.

In 1990, American industry emitted more than 2.4 billion pounds of toxic pollutants into the atmosphere. In 1991, 98 areas exceeded the Environmental Protection Agency's recommended levels for ozone, and an estimated 140 million Americans lived in those areas.

Also in 1991, 76 areas exceeded recommended levels for carbon monoxide, 70 did so for particulate matter, and 50 did so for sulfur dioxide.

Such air pollution levels have been associated with increased respiratory health problems among people living in the affected areas. According to the Healthy People 2000 report, each year in the United States -

- The health costs of human exposure to outdoor air pollutants range from $40 to $50 billion.
- An estimated 50,000 to 120,000 premature deaths are associated with exposure to air pollutants.
- People with asthma experience more than 100 million days of restricted activity, costs for asthma exceed $4 billion, and about 4,000 people die of asthma.
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EPIDEMIOLOGIC ASSISTANCE

The staff of the Air Pollution and Respiratory Health Branch provides on-site, short-term consultation and epidemiologic assistance to public health agencies.

Public or private institutions even private citizens may request our assistance; however, before we begin work, the appropriate officers of the state health department, international health agency, or foreign government must contact us to request assistance.

We have two Epidemic Intelligence Service officers who assist in investigating problems related to air pollution and respiratory health. Within 14 days after returning to Atlanta, they send the requesting agency a scientific report of their findings.

In response to requests, we recently assisted in investigating the health effects of dust storms in Washington State and of volcanic air pollution in Hawaii.

Two of the Public Health Service's objectives for the year 2000 are to reduce human exposure to air pollutants and to reduce the number of people hospitalized for asthma.

EPIDEMIOLOGIC STUDIES

Epidemiologic studies provide critical information on the health effects of air pollution. Our staff helps both domestic and foreign institutions conduct epidemiologic studies and analyze data derived from those studies. This assistance ranges from brief telephone consultations to full collaboration.

We have cooperative agreements with California and with the Pan American Health Organization to support projects to determine the respiratory effects of air pollution among children in Los Angeles and Mexico City.

We also work with CDC's Environmental Health Laboratory to measure human exposure to air pollution in a particular community or from a particular source.

- In 1989 and 1991, we analyzed air and urine samples to determine mercury exposure from latex paint among painters and people living in recently painted homes.
- Our 1989 investigation was instrumental in the decision by the National Paint and Coatings Association and the manufacturers of mercury compounds to discontinue using mercury - containing compounds in interior latex paint.
- In 1991, we analyzed blood specimens of people fighting oil fires in Kuwait to measure their exposure to volatile organic chemicals.

SURVEILLANCE

The ongoing systematic collection, analysis, and interpretation of health data provides valuable information that helps all of us in several ways.

With this information, we can -

- Assess the impact of air pollution on the health of a community.
- Identify situations that require intervention or further research.
- Evaluate the impact of programs to reduce air pollution.

The Air Pollution and Respiratory Health Branch will help local or state health departments establish appropriate surveillance systems and analyze health data in combination with data on air quality.

We have been instrumental in establishing and expanding surveillance systems for childhood respiratory illnesses in Atlanta and in Budapest, Hungary. Data from these systems are used to identify morbidity trends and to assess the impact of ambient air pollution on respiratory health.

TRAINING

Adequate training is essential to conducting meaningful research and developing effective prevention strategies. Our staff works with other agencies and organizations to develop training materials for health professionals and to improve methods used in specialized studies that involve measuring exposure to pollution.

PUBLIC INFORMATION

We also help state and local agencies improve their methods of informing the public about the health effects of air pollution.

We seek to promote ways of providing people with accurate and timely information about air quality and about the steps they can take to protect their health.

We respond to requests for information from state and local agencies, health professionals, universities, and the general public.

FOR FURTHER INFORMATION

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See also: CDC's Asthma Prevention Program (Factsheet - July 1998)

Asthma: A Public Health Response

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